

## CLAIMS:

We claim:

- 5        1. A mattress assembly constructed substantially of plastic material,  
         comprising:
- a. a mattress foundation comprising:
- i. a generally planar and essentially rigid top surface having an  
                 upper side and a lower side; and
- 10               ii. at least one essentially rigid sidewall, having a lower edge,  
                 the sidewall extending substantially along the perimeter of  
                 the lower side of the top surface, depending downward from  
                 the top surface, defining a cavity;
- and
- 15               b. a frame assembly comprising a plurality of ground support  
                 members supporting the foundation, depending downward from the  
                 lower edge of the at least one sidewall, holding the foundation  
                 above ground, and maintaining the top surface in a substantially  
                 horizontal orientation.
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2. The assembly of claim 1, wherein each of the ground support members  
         may be removably or irremovably attached to the foundation.
3. The assembly of claim 1, wherein at least one of the ground support  
25           members is attached to the foundation by a mating configuration.
4. The assembly of claim 3, wherein the mating configuration is selected  
         from the group consisting of: tongue-and-groove, dovetail, and any  
         combination thereof.
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5. The assembly of claim 1, wherein at least one of the ground support

members is integrally formed with the foundation.

6. The assembly of claim 1, wherein each of the ground support members has a cross-sectional shape selected from the group consisting of: +  
5 shape, X shape, U shape, D shape, H shape, Z shape, C shape, V shape, M shape, B shape, T shape, circular shape, elliptical shape, L shape, heart shape, and any combination thereof.
7. The assembly of claim 1, wherein the perimeter of the top surface is  
10 polygonal.
8. The assembly of claim 7, wherein the polygon is selected from the group consisting of: a square and a rectangle.
9. The assembly of claim 8, wherein the foundation comprises four sidewalls.  
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10. The assembly of claim 9, wherein the foundation comprises four ground support members essentially located at four lower corners of the foundation.  
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11. The assembly of claim 1, wherein the perimeter of the top surface has a shape selected from the group consisting of: a circle, an ellipse, and a heart.
12. The assembly of claim 1, wherein the top surface is ribbed, having air  
25 spaces formed therein.
13. The assembly of claim 1, wherein the top surface has at least one region of continuous plastic spanning a substantially central portion of the top  
30 surface, tying together opposing portions of the at least one sidewall.

14. The assembly of claim 1, wherein the at least one sidewall is corrugated.

5 15. The assembly of claim 1, wherein the at least one sidewall comprises non-planar components that increase structural resistance to undesirable deflections from load weights.

10 16. The assembly of claim 1, further comprising at least one truss structure adjoining, and structurally reinforcing, opposing portions of the at least one sidewall.

15 17. The assembly of claim 1, wherein the upper side of the top surface further includes a first mating structure, and an edge region of the at least one sidewall further includes a second mating structure adapted to engage with the first mating structure, thereby allowing a plurality of mattress foundations to be securely stacked.

18. The assembly of claim 1, further including a headboard tangentially extending vertically along one end of the foundation.

20 19. The assembly of claim 18, wherein the headboard is removably attached to the foundation.

25 20. The assembly of claim 18, wherein the headboard is integrally formed with the foundation.

21. The assembly of claim 18, wherein the headboard is constructed substantially of plastic material.

30 22. The assembly of claim 1, wherein the foundation further includes a plurality of openings for receiving casters, the casters being used for easy rolling of the foundation.

23. The assembly of claim 22, wherein each of the plurality of casters is removably attached to the foundation by a latching configuration selected from the group consisting of: tongue-and-groove and dovetail.

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24. The assembly of claim 1, further comprising at least one brace connecting opposing portions of the at least one sidewall.

25. The assembly of claim 24, wherein each of the at least one brace is integrally formed with the foundation.

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26. The assembly of claim 24, further comprising at least one pair of grooves on opposing portions of the at least one sidewall, each of the at least one pair of grooves receiving one end of the at least one brace by a configuration selected from the group consisting of: tongue-and-groove and dovetail.

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27. The assembly of claim 26, wherein the grooves are shaped to latchingly engage with the at least one brace.

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28. The assembly of claim 26, wherein each of the at least one pair of grooves is shaped to prevent outward deflection by the opposing portions of the at least one sidewall.

29. The assembly of claim 24, wherein at least one of the at least one brace includes a non-planar reinforcing structure.

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30. The assembly of claim 24, wherein at least one of the at least one brace is ribbed, having air spaces formed therein.

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31. The assembly of claim 1, wherein the lower side of the top surface further

comprises at least one reinforcing fin, oriented perpendicularly to the lower side and extending between opposing sides of the at least one sidewall.

5 32. The assembly of claim 1, wherein the lower side of the top surface further comprises at least one reinforcing truss, oriented perpendicularly to the lower side and extending between opposing sides of the at least one sidewall.

10 33. The assembly of claim 1, wherein the plastic material comprises recyclable plastic.

34. The assembly of claim 1, wherein the plastic material comprises molded plastic.

15 35. The assembly of claim 34, wherein the molded plastic is constructed by a molding technique selected from the group consisting of: compression molding, injection molding, gas-assisted injection molding, vacuum molding, low-pressure molding, blow molding, and any combination thereof.

20 36. The assembly of claim 1, wherein the foundation comprises extruded and assembled plastic pieces.

25 37. The assembly of claim 1, wherein the foundation is constructed, at least in part, of at least one non-plastic structural member covered by plastic.

38. The assembly of claim 37, wherein the at least one non-plastic structural member is metal.

30 39. The assembly of claim 1, wherein the plastic material includes reinforced plastic.

40. The assembly of claim 39, wherein the reinforced plastic contains material selected from the group consisting of: glass fiber, carbon fiber, metal fiber, resin, and any combination thereof.

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41. The assembly of claim 1, wherein the plastic material is selected from the group consisting of: polyurethane, polyethylene, polystyrene, polyvinyl chloride, polypropylene, a moldable plastic, and any combination thereof.

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42. A mattress foundation constructed substantially of plastic material, comprising:

- a. a generally planar and essentially rigid top surface having an upper side and a lower side;
- b. at least one essentially rigid sidewall extending substantially along the perimeter of the lower side of the top surface and extending downward from the top surface, defining a cavity; and
- c. at least one structurally reinforcing brace disposed along the lower side of the top surface, connecting opposing portions of the at least one sidewall.

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43. The foundation of claim 42, wherein each of the at least one brace is integrally formed with the foundation.

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44. The foundation of claim 42, further comprising at least one pair of grooves on opposing portions of the at least one sidewall, each of the at least one pair of grooves receiving one end of the at least one brace by a mating configuration selected from the group consisting of: tongue-and-groove, dovetail, and any combination thereof.